THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888

No. 35. AUGUST 27, 1949 VOL. 61.

OBSERVATIONS ON THE INCIDENCE OF INFECTION WITH M. JOHNEI IN CATTLE

By

A. WILSON TAYLOR

AGRICULTURAL RESEARCH COUNCIL FIELD STATION, COMPTON, BERKS.

The incidence of infection with *M. johnei* (Johne's bacillus) among cattle in this country has not been accurately determined. It is the purpose of this paper to record some observations on the infection rate with this organism in 243 apparently normal animals consigned to the Ministry of Food for human consumption.

Taylor (1945) has shown that extensive lesions of Johne's disease may be present in the intestine of apparently healthy sheep ; more recently (unpublished) that the same phenomenon may be observed in experimentally infected cattle and further, that *M. johnei* may be isolated in culture from bovine intestine and ileo-caecal lymph nodes which show no macroscopic lesions of the disease. It seemed probable, therefore, that further information might be gained by the cultural examination of a large number of nodes from apparently normal animals that would be a representative sample of the adult bovine population. It has been our experience that in lightly infected cattle, or from animals in the so-called incubation period, organisms may be isolated with greater regularity from the ileo-caecal lymph node than from the intestine. This finding does not of course denote that infection is more regularly confined to the lymph node but merely that the sheer bulk of the bovine intestine renders impossible the cultural examination of its entire mucous membrane. Further, the lymph node is readily studied both culturally and histologically and the routine of the slaughterhouse is not upset by its collection. Accordingly, arrangements were made to obtain from an abattoir in Berkshire, twice weekly, ileo-caecal lymph nodes from graded cattle and to examine them culturally for *M. johnei*. Lymph nodes were not taken from animals showing any symptoms suggestive of Johne's disease.

Methods

A modification of the method originally described by Corper and Uyei (1930) for the isolation of tubercle bacilli was used. The lymph nodes were freed from fat and halved. One half was fixed for histological examination ; the other was dipped in alcohol and flamed twice, then ground in a mortar with sand and a 5 per cent. solution of oxalic acid in distilled water. The resultant suspension was filtered through four layers of butter muslin, incubated for 30 minutes in a water bath at 37° C. and centrifuged for 20 to 30 minutes at approximately 3,000 R.P.M. The unwashed sediment was then thickly sown on each of five screw-capped bottles of an egg medium containing approximately 1 per cent. of heat killed *M. phlei*. The bottles were incubated at 37° C. for 12 weeks before being discarded.

Colonies resembling those of Johne's bacillus were subcultivated to plain egg, glycerine egg and the phlei medium. Cultures of small, acid-alcohol fast bacilli, which grew only on the last mentioned, after four to six weeks' incubation at 37° C., were accepted as *M. johnei*.

Results

During the four months ending on December 31st, 1948, cultures were prepared from the ileo-caecal lymph nodes of 243 different cattle. *M. johnei* was recovered from 37, or 15 per cent., a figure which suggests that the limits for larger samples will fall between 10 and 20 per cent. (Mainland, 1948). One hundred and fifty-four nodes were obtained from cows, defined as animals which were, or had been, in milk, and of these, 22, or 14 per cent., were positive. The remaining 89 lymph nodes were derived from heifers, bullocks and bulls and from these *M. johnei* was recovered from 15, or 17 per cent. No calves were examined.

An acid-alcohol fast organism as yet unidentified was, in addition, recovered from one lymph node.

Discussion

The preliminary results of the survey described here have shown an unexpectedly high incidence of infection with *M. johnei* in apparently normal cattle. The true significance of this is not readily assessed in the present state of our knowledge of Johne's disease. If it be assumed that all field strains of *M. johnei* are of more or less equal virulence for cattle, then, as 15 per cent. of 243 animals were found to harbour the organism without showing the symptoms usually associated with the disease, the opinion may be expressed that *M. johnei*, while more highly infective than previously thought, is possibly not particularly pathogenic for cattle. There are no available figures regarding the incidence of clinical Johne's disease, but it is unlikely, if, of a random sample of the adult bovine population, such as has been examined here, 15 per cent. become clinical cases. It may be argued that many cattle do not live long enough to develop clinical signs, but another explanation may be, that of a number of animals exposed to *M. johnei* at an early age, many will eventually rid themselves of infection, or may harbour the organism as a commensal over a long period without showing symptoms of the disease.

It is well known that the clinical syndrome of Johne's disease is not readily produced artificially in cattle but it has been shown experimentally (unpublished data) that the majority of calves given a large dose of *M. johnei* become infected, but by no means do all of these develop symptoms. In other words, *M. johnei* may belong to that varied group of parasites which exist as normal inhabitants of the body, *c.f., Staph. aureus, Strep. pneumoniae, Ery. rhusiopathiae, Actinomyces bovis*, and become pathogenic only under certain environmental conditions.

(*Concluded at foot of column 1, page 540.*)

THE EXAMINATION OF MINCED MEAT

By

A. GINSBERG and A. ROBERTSON,

Department of Hygiene and Preventative Medicine, Royal (Dick) Veterinary College, Edinburgh.

Amongst the more common vehicles of disease-bearing organisms, the worst offenders are made-up foods, especially the mixtures of trimmings and scraps called "minced-meat." Standfuhs[24] and Klimmeck[12] describe such material as the main cause of meat-poisoning in Germany, 42 per cent. of all cases being attributed to its consumption. The following organisms were listed[12] as causal factors in 32 outbreaks: *S. enteritidis Gaertner* (19 per cent.), *S. aertrycke* (17.5 per cent.), Salmonella-like organisms (31 per cent.), *B. coli* and paracolon organisms (19 per cent.), *Cl. botulinum* (9 per cent.), and *B. proteus* (6 per cent.).

The degree of initial contamination differs in practically every case and is naturally most pronounced if the handling and preservation of the meat is not hygienic. However, even a slight surface contamination will, according to Kallert[11], give rise to an extensive bacterial flora once the meat has been minced and the tissues torn. He found, for instance, that an initial contamination of 1,846,781 organisms per gramme increased in normal atmospheric conditions during the first 24 hours after mincing to 100,195,111 organisms, and after a further 24 hours, to 1,212,419,527 per gramme. The figures, according to Zeller and Beller[27], will be still higher if the "mince" has been made from small pieces of meat, which expose a much larger surface to bacterial contamination than do fair-sized cuts. Yet, although the bacterial flora reaches such high figures, the meat does not always show corresponding macroscopical changes, and may even show no evident decomposition for a comparatively long period[6]. This, of course, may have serious repercussions on health as under the cover of apparent freshness processes of decomposition may develop freely.

The decomposition of meat, its prevention and early recognition are, therefore, problems of the utmost importance to public health as well as to the meat trade. Whilst the prevention of decomposition has advanced substantially during recent years, methods of detecting incipient spoilage have made little or no headway in spite of the voluminous literature on the subject. When macroscopical features of decomposition are evident, judgment is, of course, fairly easy. It might, however, prove troublesome if the process had just commenced or if the meat retained its normal appearance superficially owing to the addition of preservatives.

To help the Meat Hygienist and to facilitate meat control, several tests have been described but the position is probably best summarised by citing Edelmann's opinion[6] that "no modern test has yet been discovered which is entirely satisfactory." Indeed, there is not one single test which would satisfy practical demands and replace or substantially support the macroscopical examination. The latter carried out with the senses of sight, smell, touch and taste, usually supplies quite a good picture or at least arouses the suspicion of the examiner as to the quality and freshness of the minced-meat. However, not only may the results of this examination, depending on the acuteness of the senses of the inspector, differ from day to day and from sample to sample, but also the results of different observers may be at variance. To avoid mistakes, it would, therefore, be desirable to have the macroscopical diagnosis supported by some laboratory methods which would give reproducible results.

To check the ingredients of "mince" offered for sale in Edinburgh and trace any possible fraudulent substitution of horse flesh for beef or mutton, the Corporation Veterinary Department delivered 48 random samples to this department for examination. Besides carrying out the precipitation test for the detection of horse flesh, each sample was examined for signs of decomposition. Of many tests described, it was decided to select several which seemed to yield the most favourable results, and to compare their practical value.

Technique

The samples were taken in the morning, one to three hours after the meat was minced. They were brought almost immediately to this department in sterile containers with a short note as to the time of preparation, condition and cleanliness of the shop and storage place, origin of the meat, and whether preservatives were used.

The examination of each sample started at once by taking stock of all macroscopical features such as colour, odour and consistency. The sample, which weighed usually about 120 grammes, was then divided into two portions. One portion was divided into three parts weighing one, 10 and 30 grammes, respectively. The portion of "mince" weighing one gramme was put into 10 c.c. of glucose broth, diluted to 1:1,000 and plated for bacterial count. The 10 grammes of meat were added to 100 c.c. of distilled water, shaken up, extracted for about half an hour, passed through an ordinary filter, and used for tests 1 and 3 (below). The 30 grammes portion was put into 30 c.c. of normal saline, extracted for three hours, filtered and the filtrate used for the precipitation test. The other portion was kept in a refrigerator till required for the remainder of the tests.

The infection of cattle with *M. johnei* is one of the known causes of non-specific sensitivity to mammalian tuberculin. The unexpectedly high infection rate observed in this survey of apparently normal animals suggests that this organism may be a more important cause of such sensitivity than has hitherto been believed.

The investigation is being continued.

Summary

M. johnei was isolated in culture from the ileo-caecal lymph node of 37 out of 243 graded cattle consigned to a slaughterhouse.

Acknowledgments

Thanks are due to the management and staff of the Ministry of Food Slaughterhouse, Newbury, without whose cooperation the investigation would be impossible, and to the Director of the Field Station, Dr. W. S. Gordon, for the interest he has taken in this work.

References

Corper, H. J., & Uyei, N. (1930.) *J. Lab. clin. Med.* **15.** 348.
Mainland, D. (1948.) *Canadian J. Res.* E, **26.** 1.
Taylor, A. Wilson. (1945.) *J. comp. Path.* **55.** 41.

Following these preparatory steps, the laboratory examination was carried out in the following order:—

1. *p*H measurement[23].
2. Reder's test[21].
3. Andrjewski's filtrate and chloride tests[1].
4. Eber's sal-ammoniac test[5].
5. Walkiewicz's test[25].
6. Lead acetate test[4].
7. Boiling and frying test[18].
8. Impression smear[14,23].
9. Plate count[14,18].
10. Cultural growth[14,24].
11. Precipitation test[23].
12. Histological section[23].

As standard methods were adopted throughout the examination, detailed techniques are not described here, only deviations being mentioned. The *p*H measurement was read by (a) applying a universal indicator directly to the piece of meat, and (b) by measuring the hydrogen-ion-concentration of the filtrate electrometrically. Andrjewski's filtrate test was performed with a 5 per cent. solution of acetic acid and his chloride test with a 10 per cent. solution of silver nitrate.

The Lead Acetate test was modified according to Egenhoj and the meat sample was kept in a closed jar for one hour. Simmering and cold water were used for the Boiling Test. The Precipitation Test was carried out by the modified method described in a previous paper[8]. Burroughs Wellcome anti-sera were employed for detecting the species.

Inocula were taken from the centre of the meat sample with the ordinary precautions and transferred to glucose broth for aerobic and anaerobic cultivation. In the case of minced-meat prepared from frozen meat, inoculated media were kept at room temperature as well. Both aerobic and anaerobic cultures were started in glucose broth, the former with and without the addition of brilliant-green; sub-cultures were made on to blood agar and MacConkey's bile-salt agar.

From different parts of the sample three meat-balls having a diameter of 2-3 cm. were made. They were then fixed in formol for two to three days, though 12 to 24 hours might suffice in case of urgency. After being washed in running water, they were cut on the freezing microtome into sections 15 to 20 μ thick and before these were transferred on to slides, the latter were covered with egg albumin and flamed. The excessive fat present was an obstacle to good staining and it had, therefore, substantially to be removed. To accomplish this, sections were placed into xylol for 10 minutes, then into absolute alcohol followed by methylated spirit, or the whole meat ball was treated with ether for three to four hours in a Soxhlet apparatus. The sections were stained with Heidenhain's Iron Haematoxylin and Ponceau " S " or Wright's blood stain.

Results and Discussion

The results of the various tests are summarised in Table I in which the samples have been divided into three lots. The most resistant to decomposition, comprising half the total, are listed in Group 2. About 30 per cent. of the samples (Group 1) were more acid and some even showed a tendency towards souring. The remaining one-fifth (Group 3), on the other hand, had a higher *p*H and signs of decomposition were soon evident in some cases.

The following comments may be made on the individual tests:—

1. *p*H Measurement: Van Oyen[19], Schmidt[22], and Müller[15] regarded beef with a *p*H of 6.4 and mutton with one of 6.6 as already in a state of incipient decomposition. Schönberg[23] developed this idea, making practical use of it in the inspection of meat by introducing the nitrazin-yellow indicator which turns a definite olive-green at a *p*H of 6.4. Schönberg interpreted the *p*H reading 24 hours after slaughter as follows:—

6.0 ..... " good acidity ",
6.4 ..... " insufficient acidity "—the meat being suspicious,
6.8 ..... " very low acidity "—the meat being bad.

Schönberg regards carcase meat showing a *p*H of 6.4 or above as suspicious and, therefore, advocates that it should be detained and examined for signs of bacterial decomposition.

These figures may hold good for newly slaughtered carcases but in the case of minced-meat they seem to demand a slightly different interpretation, for minced-meat, unlike carcase meat, is not likely to be kept for long but as a rule proceeds soon after mincing to the kitchen for culinary preparation. Samples, for instance, showing a *p*H of 6.9 still preserved their normal macroscopical appearance and, according to present rules of judgment, it would have been extremely difficult to defend their seizure. This, however, does not mean that they were really fresh. When

Table I

Group	*p*H	Filtrate test	Eber's test	Lead acetate test	Walkiewicz test	Bacterial count (average per gm. meat)	Macroscopical features	Predominating organisms
1	5·6 to 5·9	Negative	Negative (occasional doubtful positive)	Negative	Negative	3,713,000	Normal (slightly suspicious at lower *p*H levels)	Achromobacter, *B. coli* and paracolon. Gram positive cocci
2	6·0 to 6·4	Negative	Negative (occasional doubtful positive)	Negative	Negative below *p*H 6·2	4,412,000	Normal	Anthracoids, Gram positive cocci, *B. coli* and paracolon, Proteus, Clostridia
3	6·5 to 6·9	Positive (occasionally doubtful negative)	Positive (occasionally doubtful negative)	Negative	Positive	10,487,000	Normal (slightly suspicious at higher *p*H levels)	Clostridia, Proteus, Gram positive cocci, Anthracoids, *B. coli* and paracolon

kept for five to 12 hours at room temperature they already presented signs of macroscopical spoilage, a *p*H of 7.6 to 8.0 and a bacterial flora typical of decomposition. Whilst, therefore, a *p*H of 6.4 as suggested by Schönberg for carcase meat may be rather too low in the case of minced-meat, one of 6.9 is definitely too high as an indicator of incipient spoilage. It can be said as a result of our tests that once the *p*H of mince reaches 6.8 decomposition advances rapidly and it is probable that the danger point lies somewhere in this region.

Putrefaction, however, is not confined to protein but affects fats and carbohydrates as well and if oxyacids predominate, the reaction becomes acid. Mince with a *p*H of 5.7 often in a few hours turns so definitely acid that the taste and even the odour may become affected. This tendency, which was noted in some of the samples examined, might be associated with the process of mincing and the storage of the material in bulk. To prevent this and safeguard the consumer, Germany and Poland passed legislation in 1936 which restricted the preparation and storage of minced meat, regulated its sale and prohibited the addition of preservatives[9], [20].

Lenfeld[13] observed that changes in *p*H over a period of 24 hours were a useful indication of freshness, and, therefore, a second *p*H reading was always carried out before the report was concluded, as the interval between the start and finish of the laboratory examination takes about 24 hours. We were able to confirm that during this time normal meat will show little or no difference in the hydrogen-ion-concentration, whilst that which is bad will turn either alkaline or more acid.

Michalka's statement that the *p*H measurement is " the strongest weapon in the fight against bacteriological food-poisoning caused by meat " is obviously rather far reaching and cannot be endorsed wholeheartedly. Whilst it may be helpful in the detection of decomposition and by doing so partly prevent Proteus poisoning, it can hardly be used as a protection against Salmonella poisoning. Further study is obviously desirable to prove or disprove its importance as an indicator of incipient spoilage.

2. Reder's Test: Reder's colour reaction indicating the degree of bleeding may help to detect the fraudulent use of casualty carcases. The German literature cites several cases where minced-meat from uninspected casualty carcases was the cause of meat poisoning. None of the samples of mince we examined showed a positive reaction.

3. Andrjewski's Tests: Andrjewski's filtrate and chloride tests have been described by Ostertag[18] as " of no value as a means of preventing meat poisoning." We can confirm that, so far as the chloride test was concerned, for we found it to be of no value since its results were not clear enough to act as a guide. Even fresh meat, as a rule, produced turbidity and a precipitate and although, compared with the reaction from spoiled meat, it was certainly not so pronounced, heavy and granular looking, the distinction was insufficiently clear for practical use.

The filtrate test, on the other hand, was more helpful. The clarity and rose-red colour of the filtrate or its turbidity in case of spoilage, seemed to parallel the actual state of the meat. Once a fine emulsion or even precipitate was noticed in the filtrate after the addition of acetic acid, the meat was definitely spoiled. A positive reaction occurred as a rule at a *p*H of 6.8 to 6.9, but lower hydrogen-ion-concentrations sometimes gave positive or doubtful positive readings. Deviations from the normal were seldom noticed but the test detects advanced rather than incipient putrefaction. Though it cannot be recommended as an independent test on which to base a final judgment, when considered along with the *p*H reading it would undoubtedly be useful in the control of minced-meat.

4. Eber's Test: Eber's sal-ammoniac test still enjoys some confidence, and in the portable Hauptner kit for veterinary food control in Germany figures amongst the main reagents. In most samples a slight positive reaction was noted when the *p*H measurement was 6.5 to 6.7, but the test was not very reliable, sometimes giving doubtful positive reactions in meat with a *p*H of 5.9 or less. Moreover, it indicates advanced rather than incipient putrefaction but it might be helpful as corroborative evidence in the examination of minced-meat.

5. Walkiewicz's Test: Walkiewicz's test was found satisfactory but as its reaction depends on the hydrogen-ion-concentration of the sample, developing a positive nebula at a *p*H of 6.2, it seemed to be rather superfluous, especially as the technique of *p*H measurement is simpler.

6. Lead Acetate Test: The lead acetate test introduced by Eber has undergone several modifications[20]. The latest one described by Egenhoj[4] advocates an extension of the time from 15 minutes to one hour. That author dealt with whole organs belonging to the pig pluck and there, apparently, enough hydrogen-sulphide was developed to give positive readings. In the case of the minced-meat samples examined in this department, only negative results were obtained. As decomposition proceeds there must be a progressive increase of hydrogen sulphide, but the pieces of minced-meat tested were probably too small to produce enough to give a positive reaction. Thus the test was not sufficiently sensitive for the examination of " mince."

7. Boiling and Frying Test: The boiling and frying test combined with the sense of taste is always very helpful when dealing with meat. In the case of minced-meat it proved particularly useful to detect a sour taste. To remain on the safe side it was found advisable to ask at least two other people for their impressions as to the smell and taste. All the samples examined proved satisfactory by this criterion.

8. Impression Smear: The impression smear is advocated by some authors for the examination of meat and when made from the surface and deeper parts of the samples it does give some idea of the number and species of bacteria present. Its adoption, however, for routine examination cannot be advocated as the results do not give a real picture of the state of the meat. A small number of Salmonella organisms, for instance, will almost certainly evade recognition, while if placed in an enrichment medium they would be detected and so expose the danger of the meat to the consumer.

9. Plate Count: The total bacterial count in the present examination varied from 690,120 to 68,480,000 organisms per gramme, the average count being correlated with the *p*H readings. Taking into consideration the fact that the meat had been collected between one and three hours after mincing, these figures are fairly high, as the main bacterial development at optimum temperature usually takes place seven to eight hours after inoculation while the first two hours show practically no increase in number.

Bacterial count adopted as a routine measure in the examination of milk seems to be of little use for tracing decomposition in minced-meat. It indicates, however, that slovenly practices have taken place during the transport, storage and preparation of the " mince " and such improper and unhygienic handling has, of course, a bad influence on keeping quality and wholesomeness.

Samples derived from frozen meat showed on the whole

higher bacterial counts than those from home-killed carcases, for freezing reduces the initial contamination, but once thawing sets in and mincing follows, the number of micro-organisms increases much more rapidly than in fresh meat[27]. The colour of "mince" from frozen meat may deceive the examiner's sense of sight as it often retains its bright appearance even although the odour is already tainted and the *p*H has passed the neutral point.

10. Cultural Growth: Far more important, however, than actual numbers of bacteria are the types present, as on these mainly depend the type and rate of decomposition and any harmfulness to man[2, 3, 9, 26].

Cultures from the samples showed Gram positive cocci in 72 per cent. of cases, Anthracoids (36 per cent.), *B. coli* and paracolon organisms (25 per cent.), Achromobacter (9 per cent.), *B. proteus* (9 per cent.) and Clostridia 16 per cent.). Achromobacter and *B. coli* were found more frequently in the lower *p*H groups and in "mince" prepared from frozen meat. Proteus and clostridia were, on the other hand, more typical for samples with a *p*H nearer the neutral point, whilst in Group 2 the predominant organisms were Anthracoids and Gram positive cocci. Thus in each of the above groups were to be found organisms sometimes associated with meat poisoning.

11. Precipitation Test: The precipitation test is an important part of the examination of minced-meat as unscrupulous individuals may easily take advantage of the "iron curtain" which comes down for the layman once the meat has passed through the mincing machine. This has, however, been dealt with in a previous communication[8].

12. Histological Examination: The histological examination gave a clear picture of the components present and it should be an essential part of the examination of minced-meat[7]. Whilst the literature, particularly German, enumerates different fraudulent substitutes found in minced-meat, it is to the credit of Edinburgh butchers that even in times of austerity the components were entirely parts defined by legislation as "meat."

Summary

While the control of minced-meat based on naked-eye examination alone does not suffice and should be supported by laboratory tests, chemical methods which are in use at present for the determination of incipient putrefaction are of doubtful value. They indicate advanced rather than incipient decomposition.

Methods depending largely on physical changes such as *p*H measurement, Andrjewski's filtrate test and Eber's sal-ammoniac test are more helpful, especially if applied in connection with bacteriological examination.

The total aerobic bacterial count is of little significance as a standard for minced-meat analysis, the degree of spoilage and harmfulness to man being more dependent on the types of micro-organism present.

While at present examination of minced-meat for incipient decomposition must rely on three factors, *viz.*, macroscopical appearance, types of bacteria present and certain physical reactions, the problem warrants further study.

Histological examination is an essential part of the control of minced-meat, as is also the precipitation test.

Acknowledgments

Thanks are expressed to Mr. P. G. D. Morris, B.A., M.R.C.V.S., Royal (Dick) Veterinary College, for carrying out the histological examinations, to Mr. J. Norval, M.R.C.V.S., for providing the samples, and to Mr. I. H. Thomson for assistance with the laboratory work.

References

[1]Andrjewski, P. (1927.) *Z. InfektKr. Haustiere.* **33.** 89.
[2]Beatty, S. A., & Gibbons, N. E. (1936.) *J. Biol. Bd. Canad.* **3.** 77.
[3]Carey, W. E. (1916.) *Amer. J. publ. Hlth.* **6.** 124.
[4]Egenhoj, J. (1948.) *Medlemsbl. danske Dyrlaegeforen.* **31.** 474.
[5]Eber, W. (1897.) *Z. Fleisch-u. Milchhyg.* **11 & 12.** 207, 227.
[6]Edelmann, R. (1944.) "Textbook of Meat Hygiene." London.
[7]Frickinger. (1928.) *Fleisch-u. Milchhyg.* **19.** 341.
[8]Ginsberg, A. (1948.) *Vet. Rec.* **60.** 683.
[9]German Minced-Meat Order. "Verordnung uber Hackfleisch, Schabfleisch und ahnliche Zubereitungen. 24th July, 1936."
[10]Hunter, A. C. (1922.) *Amer. J. Hyg.* **2.** 368.
[11]Kallert, E. (1928.) *Berl. tierärztl. Wschr.* **33.** 547.
[12]Klimmeck. (1928.) *Ibid.* **19.** 317.
[13]Lenfeld, J. (1929.) *Z. InfektKr. Haustiere.* **36.** 44.
[14]Mackie, T. J., & McCartney, J. E. (1945.) "Handbook of Practical Bacteriology." Edinburgh.
[15]Muller, J. (1939.) *Dtsch. tierärztl. Wschr.* **45.**
[16]Michalka, J. (1942.) & (1943.) *Z. Fleisch-u. Milchhyg.* **15 & 1.** 174, 3.
[17]Mathieu, W. (1928.) *Dtsch. tierärztl. Wschr.* **21.**
[18]Ostertag, R. (1934.) "Text-book of Meat Inspection." London.
[19]van Oyen. (1933.) *Z. Fleisch-u. Milchhyg.* **43.** 429.
[20]Polish Food & Drugs Act. "O dozorze nad miesem i przetworami miesnymi." December 10th, 1936. Par. 5, sec. 1 & 2.
[21]Reder. (1944.) *Z. Fleisch-u. Milchhyg.* **54.** 181.
[22]Schmidt, F. (1928.) *Arch. Hyg.* **100.** 377.
[23]Schönberg, F. (1945.) "Die Untersuchung von Tieren stammender Lebensmittel." Berlin.
[24]Standfuhs, R. (1936.) "Bakteriologische Fleischbeschau." Berlin.
[25]Walkiewicz, W. (1939.) *Rec. Méd. vét.* **115.** 385.
[26]Weaver, R. H. (1927.) Technical Bull. No. 79.
[27]Zeller, H., & Beller, K. (1930.) *Z. Fleisch-u. Milchhyg.* **12.**

News from Overseas

Plans for South America's part in the 1950 World Census of Agriculture, which is to be carried out under the auspices of the Food and Agriculture Organisation of United Nations, were put forward at a July meeting in Bogota, Colombia.

About 65 countries will take part in the 1950 census, the main items of which will include (1) agricultural lands and their use; (2) forms of land tenure; (3) the numbers of farm livestock and poultry; (4) the use of farm implements and machinery and mechanical power. It is interesting to note that a veterinary subcommittee of F.A.O. is, for the first time, to prepare a report on the veterinary services available in each country. Thus we shall at last have a work of reference from which it will be possible to ascertain at a glance how many veterinarians there are in a particular country, and what proportion of them are in State employ, general practice, research, etc.

. . . . .

The Veterinary Medical Associations of Denmark, Finland, Norway and Sweden have in "Nordisk Veterinaermedicin" a joint publication—an interesting example of international collaboration and enterprise in the veterinary sphere.

* * * * *

THE VETERINARY SURGEON'S PART IN GREAT BRITAIN

In welcoming the International Veterinary Congress, *The Farmers' Weekly* points out that the gathering was concerned with the world-wide function of the veterinary profession, and adds: "We might do well to consider if there ought not to be a more lively and realistic appreciation of the part our own veterinary surgeons are playing and ought to play in developing our home agricultural production." The journal goes on to specify features of that part and concludes: "Most important of all, however, has been the new spirit which has grown up between the farmer and his veterinary surgeon. Time was when the latter was only called in when our own witch-doctoring had failed, and nearly always too late. To-day we recognise his knowledge and skill lies as much in preventing disease as in treating it, and his advice is sought in maintaining the health of our animals—as great an asset as there is on a farm—instead of rescuing them from the knacker's yard."

IMPRESSIONS OF THE XIVth INTERNATIONAL VETERINARY CONGRESS

By

D. M. CAMPBELL, D.V.S.

Chicago, U.S.A.

When it was announced that the programme of the XIVth Congress would be built around a single branch of veterinary service—its contribution to the production of food—the comment was frequently heard that our international congresses should be truly international in scope and include discussions of all phases of veterinary service and all branches of veterinary science. The magnificent address of Lord Boyd Orr set at rest any misgivings as to the wisdom of selecting an agendum stressing the importance of veterinary science to the provision of an adequate, wholesome food supply for any nation.

In view of the central location of London and the importance of the subjects discussed, a larger attendance than graced the meeting would ordinarily have been expected, but when the inadequacy of transportation from the Western Hemisphere and monetary restrictions obtaining in most nations elsewhere are taken into consideration, the attendance of approximately 1,000 veterinarians was gratifying. Of more importance than numbers is the fact that official and other representatives of 53 nations attended this congress and have taken back home with them a message that will be heard at the present time as never before. The degree to which veterinary service enters into a wholesome and assured food supply and into a maintained fertility of the soil must prove a revelation to the governments of many nations when reports of this congress are submitted to them. Lord Boyd Orr's theme that a good veterinary service is essential to an assured food supply is underlined by the present or recent experience of two-thirds of the world's population.

I cannot speak for earlier congresses, but at none of the last five have delegates received a warmer welcome or experienced so little inconvenience from being in a foreign land as at this one. All critics like to present what they call " constructive criticism," *i.e.*, find fault and suggest remedies. I confess an inability to suggest an improvement in the smooth functioning organisation that handled the business matters and social features of the congress. The secretariat deserves an ovation.

Two criticisms relative to preparations for congress may be justified and, it is hoped, helpful for the future. Firstly, is it not probable that lower membership fees would have produced a larger fund and have resulted in a greatly increased membership and a wider distribution of the reports of the congress, thus enhancing its influence ?

Secondly, one may perhaps be allowed to stress the necessity for a somewhat greater effort on the part of the various national veterinary associations to stimulate interest in the congress and thereby increase the membership. It is shown by the experience of this congress—as was shown in earlier congresses—that most national associations will make a sustained effort to recruit members for the congress only if they are persistently and repeatedly urged to do so. The large membership of the XIIth Congress illustrated the success of persistence in membership drives.

Three Presidents at the Dorchester

Dr. Montgomerie, Sir Daniel Cabot, Professor Thos. Dalling with the "International" secretarial organisation team: Lt.-Colonel Gordon Roberts (on left), Miss Miles and Mrs. Haig.

CLINICAL COMMUNICATION

CAN COWS BECOME PREGNANT AGAIN AFTER CAESAREAN SECTION?

Dr. W. LAUE

Berchtesgaden, Germany, American Zone, Formerly Hermsdorf am Kynast, Riesengebirge, Silesia

The performance of Caesarean sections in cows, which I have carried out in my practice without an assistant and without an operating theatre, has been reported on by me in the *Wiener Tierärztliche Monatsschrift*, Vol. 20, Pages 465-467, 1942, and in the *Tierärztliche Mitteilungen*, Nos. 5/6, 1943.

In November, 1942, I discussed with Prof. Dr. Benesch of the Tieraerztliche Hochschule in Vienna the question whether cows could become pregnant again some time after Caesarean section. Professor Benesch told me that in his experience he has always been unsuccessful in persuading the owners of the cows which had had a Caesarean section to have the cows covered again. He had tried to buy the cows in question for the obstetrical clinic in Vienna, but the owners, who must have been somehow superstitious, always preferred to sell the cows for slaughtering.

I have been able to prove in my own practice, that a cow after having had a Caesarean section can become pregnant again.

In one of these cases, in July, 1942, I was called to see a cow as it had been in labour for three days.

The cowshed, in which there was also a henhouse, was small and poorly equipped. The operation had to be performed by candle light, as the electric supply had been damaged by a thunder storm. The farmer lived some distance away from the cowshed and as he had to look after his soldier son's farm as well, each pail of water had to be carried from the farmer's house to the cowshed.

Under these unfavourable conditions, the incision for the Caesarean section had to made in the linea alba.

The cow was covered again and became pregnant.

In another case a bundle of straw fell on to the wound during the operation, due to the carelessness of one of the assistants. Millions of germs entered the abdomen through the wound, which extended from the udder to the umbilicus.

The cow calved again in 1943.

UNIVERSITY OF LONDON SECOND EXAMINATION IN VETERINARY SCIENCE

Following is the Pass List of the above examination (for internal and external students), for July, 1949: Ahmad, Alauddin; Cripps, Jack Harry Harrison; Faull, William Baines; Hawksley, Michael Bruce; Holcombe, Robert Brian; Howell, Dennis George; Jenner, Francis Harold; Jull, David John; Peacock, Ralph; Rees, William Howard Guest, and Sainsbury, David William Bateman, all internal students of the Royal Veterinary College, and Roddis, Alan Frederick, of the University of Liverpool.

* * * * *

Corrigendum.—Through oversight an error was made in our editorial article in the last issue in referring to the officers of the R.C.V.S. who received guests at the Guildhall. It was not the President and two Vice-Presidents who received the guests, but the President (Professor Dalling), the Senior Vice-President (Mr. H. W. Dawes), and the Honorary Treasurer (Professor J. B. Buxton). We regret the error.

ABSTRACTS

[Hormones and the Treatment of Sterility in Dairy Cattle. A review. Asdell, S. A. (1949.) *J. Dairy Sci.* **32,** 45-59.]

The review opens with a list of the hormones available for treatment of cases of sterility and a concise statement about their sources and physiological actions. This introduction should be most helpful, for the hormones of importance in reproduction are relatively numerous and their physiological actions complex. Much unnecessary confusion, however, arises from the bewildering array of trade names under which hormone preparations appear on the market (there is no difficulty in collecting some 20 names under which the synthetic hormone "stilboestrol" may masquerade). Because of this, Asdell's introduction is particularly valuable. The main part of the review analyses the reports on the use of hormones in various types of bovine sterility. The types of sterility considered are as follows: the freemartin, infantile ovaries, hypoplastic ovaries in adults, suboestrus, persistent corpora lutea, anoestrus, nymphomania, cystic ovaries without nymphomania, cows showing regular oestrus cycles but failing to conceive, and sexual inactivity in bulls. In each type of problem the value of the therapy is carefully and critically assessed. There is, however, no need to detail treatments, for Asdell, in summing up, is forced to conclude that very little of the published work has been adequately controlled, and where controls have been kept hormone therapy has been of very doubtful efficacy. In any definite type of infertility the average percentage of response is about the same whatever the treatment. These depressing conclusions will come as no great surprise to those with much experience of hormone therapy in this field. Asdell contends, first that much more fundamental research on the exact physiological rôles of the hormones in the cow is necessary so that hormone therapy may be put on a more physiological basis both as regards selection of the hormone and the dose level to be employed, and secondly that in all field trials therapy on a "shotgun" basis must be abandoned and all investigations must be adequately controlled despite the difficulties associated with this procedure.

A. T. C.

* * * * *

[Hormone Therapy in Veterinary Medicine (Trans. Title). Spörri, H. (1948-49.) *Z. Vitaminforsch.* **2.** 292-352.]

This review by Spörri is probably the most extensive and accurate review of its kind. It deals not only with hormone therapy in veterinary medicine, but also gives an excellent review of the recent advances in the endocrinology of reproduction and lactation in the domestic animals. It has a bibliography of 326 references. A much wider field is covered than in the above review by Asdell, but the assessments of the treatments are somewhat less critical. This review will be invaluable to the research worker and specialist and contains much of interest to the general practitioner. There are four main sections; the first deals with the physiology and therapeutic use of the hormones related to reproduction, the second with the hormones influencing lactation, the third with hormone applications in poultry husbandry, and the fourth with the use of hormones in speeding up the fattening of animals.

The review is well constructed and up to date throughout. In the first section much of the part devoted to the

clinical use of the hormones in the cow covers similar ground to Asdell's review. Of some interest, however, is the use of chorionic gonadotrophin to induce " hormonal castration " or anoestrus in cats, bitches and fattening pigs, through the production of persistent corpora lutea. The dose recommended for a 50 kg. pig is 5,000 i.u. For bitches and cats the dose is said to be two or three injections of 500 i.u. at intervals of five days. Apart from treatment in the cow, oestrogens have been used in the bitch in cases of misalliance, in prostatic hypertrophy in the dog, and in the treatment of urinary incontinence. Owing to the cost, progesterone has been little used in veterinary medicine. Androgenic hormones have been used in cases of sexual inactivity in the dog, benign prostatic hypertrophy, mammary tumours in spayed bitches and to increase the speed and staying power of geldings. Reference is made to claims that in large doses, extracts of the pineal body will suppress sexual activity and are thus of value in nymphomania. Thyroxine or iodo-casein is said to have given useful results in certain cases of infertility. The section dealing with milk secretion refers mainly to researches on the farm animals and thus contains much of interest to the veterinarian. The use of oestrogen for inducing udder development and milk secretion in cows and in the treatment of cases of hypogalactia in mares, is reviewed at length as well as the use of iodo-proteins and anterior-pituitary extracts in stimulating a declining lactation. The last two sections are relatively short and deal with endocrine therapy to increase egg production in hens, and the use of antithyroid substance and oestrogens in speeding up the fattening of animals.

A. T. C.

VICTORIA VETERINARY BENEVOLENT FUND

Annual General Meeting

The Annual General Meeting of Members of the Victoria Veterinary Benevolent Fund was held at 10, Red Lion Square, London, W.C.1, on June 1st, 1949.

The chair was taken by the President (Mr. Arnold Spicer) and there were also present: Professor T. J. Bosworth, Mr. Esmond Brown, Professors T. G. Browne, J. B. Buxton, Mrs. F. M. Buxton (President, Ladies' Guild), Captain H. W. Dawes, Professors A. A. Forsyth, R. E. Glover, Mrs. D. I. Glover, Mr. G. N. Gould, Professor W. Kearney, Captain W. R. McKinna, Mr. G. P. Male, Captain T. M. Mitchell, Professor W. M. Mitchell, Captain J. W. Procter, Major L. P. Pugh, Lt.-Colonel P. J. Simpson, Major Henry Sumner, Professor G. H. Wooldridge, Mrs. Evelyn Wooldridge (Secretary, Ladies' Guild) and Dr. W. R. Wooldridge, with Mr. C. W. Francis (Accountant) in attendance.

Minutes.—On the proposal of Dr. W. R. WOOLDRIDGE, seconded by Mr. G. P. MALE, the minutes of the annual general meeting held on Tuesday, June 1st, 1948, were confirmed and signed.

Apologies for Absence.—The HON. SECRETARY (Col. P. J. Simpson) read apologies for absence from Mr. P. F. Dolan and Captain A. Whicher.

The CHAIRMAN: I think I should mention that Mr. Steele-Bodger is unable to be here this morning on account of a serious accident in which his eldest son has been involved. His son has sustained very severe injuries in a motor-car accident. I feel sure that you would like to send an expression of sympathy to Mr. Steele-Bodger.

This was agreed unanimously.

SPECIAL RESOLUTION

The CHAIRMAN proposed the following Special Resolution:

" That the Articles of Association of the Association be altered by adding the following new Article to be numbered 19a, namely:

" By virtue of subsection (7) of Section 185 of the Companies Act, 1948, subsections (1) to (6) inclusive of that Section shall not have effect in relation to the Association or to the Members of Council."

The HON. SECRETARY: If this Special Resolution is not passed, then all those on the Council who are over the age of 70 will under the Companies Act, 1948, be debarred from taking any part in the administrative work of the Fund, including those members nominated by divisions. By passing this Special Resolution, we shall ensure that things remain as they are at present and we shall be able to elect anybody, of any age. The Board of Trade has signified that it is perfectly willing to accept the proposed alteration of the Fund's Articles so as to exclude the operation of the provisions of the Companies Act regarding Directors.

Dr. W. R. WOOLDRIDGE seconded the proposal, which was put to the meeting and carried unanimously.

ELECTION OF OFFICERS

President.—Mr. H. W. DAWES: I feel certain that, in view of the interest which Mr. Spicer, our present President, takes in the work of the Fund, we could not do better than ask him to continue in office for another year. I therefore propose that Mr. Spicer be re-elected as President for the coming year.

Captain T. M. MITCHELL: I have pleasure in seconding the proposal.

The proposal was carried unanimously.

The CHAIRMAN: I wish to thank you for the honour you have done in re-electing me President. I will endeavour to do all that I can to carry out the task conferred upon me.

Vice-Presidents.—The following were unanimously re-elected for the ensuing year: Professor J. B. Buxton, Mr. H. W. Dawes, Mr. G. P. Male and Professor G. H. Wooldridge.

Honorary Secretary.—The CHAIRMAN: I propose that the Honorary Secretary, Col. Simpson, be re-elected for the coming year. He is doing, and has done, marvellous work for the Council. Nobody knows how much he does except those two or three people who work with him.

The proposal was seconded, and carried unanimously.

The HON. SECRETARY: I should like to express thanks for the confidence you have shown in me. I will endeavour to carry on for another year, but I think that at the end of that time I shall be asking you to look round for a new Secretary, if you do not dispense with me before that time. The work is fairly onerous—a good deal more onerous than I anticipated when I rather lightly took on the job—but it is very interesting work and I like it very much indeed. I will endeavour to carry on for a further twelve months.

Honorary Treasurer.—Mr. G. P. MALE: I propose the re-election of Professor J. B. Buxton. He has taken a great interest in this work, and I am sure you would wish him to continue in this office for another year.

The proposal was seconded, and carried unanimously.

The Hon. Treasurer: I should like to thank the meeting. As long as you give me plenty of money, it will be an easy job.

Auditors.—The Auditors, Messrs. Wilkinson, Chater and Co., were re-appointed.

Annual Report and Statement of Accounts

The Chairman: In connection with the section of the Annual Report which deals with the Ladies' Guild, I should like from the Chair to express thanks to the ladies for the marvellous job they are doing for the Fund. They have now started another branch in Wales and one is either being started or has already started in Ireland. I think we can look forward to a very successful year so far as they are concerned.

On the proposal of Captain T. M. Mitchell, seconded by Mr. H. W. Dawes, the Annual Report and Statement of Accounts were adopted unanimously.

Election of ten Members of the Association to serve on the Council.—On the proposal of Mr. G. P. Male, seconded by Professor G. H. Wooldridge, the following members were re-elected: Messrs. Holroyd, Steele-Bodger, Professor Browne, Mrs. Glover, Captain A. Whicher, Dr. Wooldridge, Mrs. Gould, Mr. Gould and Captain Procter.

On the proposal of Mr. G. N. Gould, seconded by Mr. Dawes, Mrs. W. R. Wooldridge, Hon. Secretary of the Ladies' Guild, was elected a member in the place of the late Lt.-Colonel Rees-Mogg.

Vote of Thanks to the President.—The Hon. Secretary: I should like to propose a vote of thanks to the President for the work he has done during the year and for his conduct of the business to-day. Perhaps I know as well as, and indeed more than, anybody else the enormous amount of work he does. I am afraid that I am rather a thorn in his flesh, because almost every day I send him letters on some matter or other, but he answers them very promptly and a large amount of business is got through very expeditiously.

The vote of thanks was carried with acclamation.

The Chairman: I wish to thank you sincerely for your expression of thanks, and also for your attendance to-day and the very prompt way in which you have done a great deal of business.

NOTES AND NEWS

Diary of Events

Sept. 3rd.—Annual Meeting of the North of Scotland Division, N.V.M.A., at the Laboratories, Mill of Craibstone, 2 p.m.

Sept. 7th.—Meeting of the Southern Counties Division, N.V.M.A., at Salisbury, 6 p.m.

Sept. 9th.—Meeting of the North Wales Division, N.V.M.A., at the Veterinary Field Station, "Leahurst," Neston, Wirrall, 2.30 p.m.

Sept. 14th.—Meeting of the Editorial Committee, N.V.M.A., 3 p.m.; Executive Committee, 1.30 p.m.

* * * *

War Damage Repairs at Gordon Square

Owing to war damage repairs at 36, Gordon Square, some disorganisation in the work of the Association's Headquarters will be unavoidable for the next month or so. Members of the Association and subscribers to the *Record* are therefore asked to allow for this should there be any delay in dealing with their communications.

PERSONAL

Appointments.—The following promotion appointments in the Colonial Veterinary Service are announced: Mr. G. F. Elliott, M.R.C.V.S. (Senior Veterinary Officer, Northern Rhodesia), to be Deputy Director of Veterinary Services, Northern Rhodesia, and of Mr. E. F. Peck, B.V.Sc. (Tor.), M.R.C.V.S., D.T.V.M. (Edin.) (Chief Veterinary Officer, Somaliland Protectorate), to be Director, Combined Agricultural and Veterinary Services, Somaliland Protectorate.

First appointments are those of Mr. T. Pettifer, M.R.C.V.S., as Veterinary Officer, Tanganyika, and Mr. D. A. Walker, M.R.C.V.S., as Veterinary Officer, Kenya.

* * * * *

Birth.—Douglas.—On August 14th, 1949, at Bellevue, Stokesley, Yorkshire, to Jeanette (*née* Bruce) wife of J. C. Douglas, M.R.C.V.S., a daughter—Evelyn Stuart.

* * * * *

Mr. P. J. Howard Honoured.—At the August meeting of the Veterinary Medical Association of Ireland, Mr. Patrick J. Howard, M.R.C.V.S., the well-known practitioner of Ennis, Co. Clare, was elected an Honorary Member in recognition of his 50 years of unbroken membership.

The President of the Association, Mr. J. D. Whitty, before presenting Mr. Howard with the scroll of honorary membership, spoke of Mr. Howard's great services to the Association.

Mr. Howard gave an address on his experiences as a veterinary surgeon in the last half century, and, at the conclusion, was presented with a silver salver.

* * * * *

Forthcoming Marriages.—Burke—Wade.—The marriage of Neil F. S. Burke, M.R.C.V.S., younger son of Mrs. B. C. Burke and the late Mr. J. W. Burke, of Ilford, to Jean Wade, youngest daughter of Mrs. L. M. Habgood and the late Mr. C. Habgood, of Oxted, Surrey, will take place at St. Mary's Church, Oxted, on September 10th, 1949.

Carter—Powell.—The engagement is announced between Nigel S. Carter, M.R.C.V.S., only son of Mr. and Mrs. C. V. Carter, of Kelmscott, Styal Road, Gatley, and Doreen Powell, only daughter of Mr. and Mrs. E. Powell, of Scrogram, Sedbergh.

* * * * *

Mr. J. L. Hancock's Bull Fertility Research at Cambridge.—Mr. James Leonard Hancock, B.V.Sc. (Liv.), M.R.C.V.S. is about to leave the Wellcome Veterinary Research Station at Frant to join the staff of the Mobile Research Unit which has been set up by the Agricultural Research Council at Cambridge and which, under the directorship of Dr. Walton will carry out investigations on bull fertility in animals being used in artificial breeding units. This announcement, we trust, will facilitate the continuity of Mr. Hancock's work in this field which, as he informs us, "has depended for some time on the co-operation of many practitioners."

* * * * *

R.C.V.S. OBITUARY

Cane, John, Capt. late R.A.V.C., Derwen Lodge, Ruabon Road, Wrexham, Denbigh. Graduated London, July 10th, 1899. Died January 2nd, 1949. (Notification just received.)

Hames, Samuel Laxton, Somerby, Oakham, Rutland. Graduated London, April 1st, 1873. Died August 16th, 1949; aged 94 years.

Robertson, Edward Douglas Struan, 2, Ravelston Garden, Edinburgh, Major 21st P.A.V.O. Cavalry (Frontier Force) (Retd.). Graduated Edinburgh, December 15th, 1925. Died September 30th, 1948. (Notification just received.)

Shave, Professor Edward Simpson, F.R.C.V.S., M.R.C.V.S. (Eng.), L.R.C.P. (Lond.), of 33, De La Warr Road, Bexhill-on-Sea, Sussex. Graduated London April 2nd, 1879; Fellowship October 21st, 1890. Died August 22nd, 1949; aged 92 years.

Mr. John Cane, M.R.C.V.S., of Wrexham

A Great Games Player

As intimated above, the Royal College has but recently received notification of the death of Mr. John Cane, of Wrexham, who passed away on January 2nd.

Mr. Cane, who commenced practice in Wrexham in 1900 shortly after graduating in London, was a native of Sutton, Surrey, and was educated in France and afterwards at Wellingborough College. *The Wrexham Leader* says of him: "During his 48 years in Wrexham he made many friends and was not only greatly respected as a veterinary surgeon but achieved a high reputation in his numerous activities. His prowess as an amateur football player was excelled by few in North Wales. He played football for England and was captain of Middlesex County, and in 1898-9 captained the well-known London team Crouch End Vampires.

His cricket activities were many and varied, he having been captain of Denbighshire County XI for a considerable number of years, whilst many of his talented exhibitions playing for Sir Alfred McAlpine's XI at Marchwiel will be remembered for a long time. A keen follower of athletics, he organised a gymnastic display in 1935 in Wrexham, which brought enthusiastic support from many in the district. As an angler, shot, huntsman and boxer there are very few who could claim ability in so large a sphere of sport as John Cane. During the first world war he gave up his practice and served with the R.A.V.C. He was a pioneer motorist, being one of the first to drive a motor-car in Wrexham. He is survived by his widow (daughter of the late Robert Wells, solicitor, South Square, Gray's Inn, London) and three daughters, Mrs. Alan Warren, Mrs. Blakeley-Russell and Mrs. Vivian Jones."

* * * * *

Mr. Samuel Laxton Hames, M.R.C.V.S.

DOYEN OF THE PROFESSION

We also have to record with deep regret the death of Mr. Sam Hames, as he was invariably known, who was not only aptly described as the "grand old man of Leicestershire hunting," but one whose name for some years now has headed the revered list "Chirurgorum Veterinariorum Collegii Regii Seniores." Mr. Hames qualified from the London College in April, 1873, four years ahead of his nearest colleague in seniority of graduation, Mr. Philip Vincent, of Hove. He died at the home of his daughter, Mrs. Drage, at Burrough Hall, Melton Mowbray, and was laid to rest in the same grave as his wife in Somerby Burial Ground.

When Mr. Hames left the Royal Veterinary College over 70 years ago he was the youngest practitioner in England. He developed an impressive knowledge of horses, and became a skilled buyer and judge of horses in this country and Ireland.

From Leicester, where he spent the first part of his life and built up business, Mr. Hames moved to Somerby, where he stayed over 50 years.

A contributor to *The Leicester Mercury* says of him: "At the age of 94 it had to be expected; but there are a great many people in Leicestershire and as many farther away who will sorrow over the passing of Mr. Sam Hames. His grandparents were, I believe, farmers around Great Glen; his father was a saddler in the Haymarket back in the time when the Clock Tower quarter was a centre for hunting stables. Before he established himself as a horse dealer, Mr. Hames had qualified as a veterinary surgeon; but he gave up that profession to launch out in his native Leicester on the career that brought him immense success and made necessary a move to Somerby.

"He was for a long time superintendent of the Sunday school at Somerby; and although his business frequently took him away to Ireland in days when travel was not so easy, he was never out of his place on a Sunday morning. In this there was no humbug about him: he carried his Christian principles into his daily life and all his work.

"Major Guy Paget spoke of this to me when he referred to Mr. Hames' great genius in horse-dealing. He was always most careful: he would not just sell a horse, he suited the horse to the man who was buying. This scrupulous integrity in a trade rather notorious for sharp practise (I write about a time when it fairly hummed) built up for Mr. Hames a wide and distinguished clientele.

"He was in all ways a front rank sportsman: no man of his time rode better or with greater courage. When he was over 60, or nearer 70, there were few who could beat him across Leicestershire. It was his great patience and gentleness with a horse that brought him such success, and he was the same with his fellow men, whether prince or commoner. Moreover, he was a humble self-effacing man, and in a way that was a pity; for he could have written a wonderful book."

* * * * *

Professor E. Simpson Shave

Shortly before going to press with this issue we learn of the death, as recorded above, of Professor Edward Simpson Shave. Fuller tribute must await a later issue, but it should be said now that no name was more often, or more affectionately, mentioned wherever old London students were gathered together than that of "Teddy Shave," for collegiate generations of them their able teacher in anatomy (1879-1920) and later their shrewd, kindly examiner. He passed away at Bexhill-on-Sea, where he spent many happy years in retirement, with his devoted life's companion. Heartfelt sympathy will be extended to Mrs. Shave in her loss.

REGULATIONS GOVERNING IMPORTATION OF DOGS INTO SWEDEN

In our issue of July 24th, 1948 (page 373), we reproduced what were then the latest requirements governing the importation of dogs into Sweden. The following amendments have been made to the conditions:

No. 5 should now read: "That the dog, after being admitted to quarantine and also not less than one week before it is due to be returned to its owner, undergo blood tests and be found free of infection by leptospirae and also of any sign of disease communicable to other animals and to human beings."

No. 6: "That if during the period of quarantine the dog shows a positive reaction to leptospirae or any other disease communicable to other animals or to human beings, it should be put to death without expense to the Swedish Government, or, if an agreement to that effect can be made between the buyer or seller in the exporting country, returned to the exporting country within 30 days of the disease being detected."

It is essential that the importer should make sure in good time beforehand that a place will be free for the dog in quarantine in Sweden, and that the veterinary surgeon concerned in Sweden be advised of the arrival of the dog or least 24 hours in advance.

* * * * *

ANIMAL HEALTH TRUST EXECUTIVE COMMITTEE FOR NORFOLK

SIR CLEVELAND FYFE'S APPEAL TO FARMERS

An appeal to farmers to support the Animal Health Trust was made at Norwich recently by Sir Cleveland Fyfe, C.B.E., organising secretary of the Trust, at a meeting at which an Executive Committee of the Trust was set up for the County of Norfolk.

Sir Cleveland said he would confine his remarks to two points, the urgency of their work from the standpoint of owners of farm livestock and the importance of their work to the veterinary profession.

During the war years farmers throughout the country concentrated upon the needs of the Red Cross Agriculture Fund, and that explained why, for the first three years of its existence, the Animal Health Trust was debarred from making any organised attempt to enlist the backing of livestock farmers. It soon became obvious, however, that no time must be lost in tackling the problems of farm livestock. The urgency of the matter was emphasised two years ago when, in the course of debates in Parliament on long-term agricultural policy, it emerged that there was general support for the view that livestock production must be given first place in our farming programme.

Accordingly the Trust decided to proceed at once with the establishment of a group of Farm Livestock Research Stations and to borrow the money which that enterprise would require. A small estate was purchased for the purpose and the bulk of the purchase price was covered by loans from the Milk Marketing Board and the N.F.U. Mutual Insurance Society. Already they had a Poultry Research Station actively at work. The nucleus of a cattle station was in existence and stations to deal with the disease problems of sheep and pigs would follow. A farm manager had been installed to take charge of their farming interests.

That, in brief, was the background to the appeal which they were making to the counties for support. The cost to the nation of animal disease losses ran into scores of millions of pounds every year. The great bulk of that enormous sum—not less than £50,000,000 annually—fell upon the farming community. If farmers, in their own interest, wanted to see that figure substantially reduced, they must be prepared to help the Trust to help them. It was no good imagining that the State would do the job. The State did make certain financial provision for veterinary education and research, but there was ample scope for the work which the Animal Health Trust had commenced and there would be no overlapping. He was quite certain, too, that in the field of research progress would be more rapid under private enterprise, with the greater freedom enjoyed by the research workers concerned, than under Government control.

Just as they wanted to rope in all livestock farmers as members of the Trust, they were also appealing to all practising veterinary surgeons to enrol themselves as active supporters. This campaign for animal health standards required team work if it was going to yield maximum results. The team must include livestock owners and veterinary practitioners, working in the closest association with the scientists and laboratory workers engaged at the Trust's Research Stations, and in constant touch with workers concerned with the advancement of knowledge in kindred fields of research at the universities and elsewhere. Obviously, the work done at their Research Stations once they are fully equipped and staffed, could add enormously to the resources at the disposal of veterinary sur-

geons. They intended, too, to help them by providing diagnostic and hospital services in the counties as soon as the Trust's financial position made it possible to do so. He was confident that before many years had passed the activities of the Animal Health Trust would have made a real and enduring contribution to raising the status of veterinary science in the national interest.

It was in order to promote the team work to which he had referred that it was proposed to set up a Norfolk Executive of the Trust. They were most grateful to those present who had expressed their willingness to serve on the Committee, and he was quite sure that under their guidance a very substantial addition to the Trust's membership in the county speedily would be secured.

* * * * *

VISIT OF PARTY OF I.V.C. DELEGATES TO MESSRS. BOOTS

A party of some 60 delegates drawn from 21 different countries paid a visit to Nottingham on August 16th and 17th, 1949 to visit the Veterinary Science Division, Research Laboratories, factories and farms as guests of Messrs. Boots Pure Drug Company.

On arrival in Nottingham the party was conveyed to the Victoria Hotel where it was received by The Rt. Hon. Lord Trent, Chairman of the Company and Chancellor of Nottingham University.

After lunch the party was conveyed to Beeston where the afternoon was spent touring the two drug factories and Boots College—during the journey to Beeston a glimpse was afforded of Nottingham University which was presented to the City by the first Lord Trent.

In the evening the party was joined by several local members of the profession and representatives from various departments of the firm and entertained to dinner at which Lord Trent presided. In an after-dinner speech Lord Trent said he thought an infinite amount of good could come out of such conferences. "You are not a collection of politicians trying to score off each other. You are trying to conquer disease and to make the world better to live in for the peoples of every race" he declared. His Lordship considered that gatherings such as the Congress and the Edinburgh Festival did a tremendous amount of good. The next Congress, he understood, would be in four years time—a very great deal would probably have happened in that time but if the nations would only take an example from the Veterinary Congress and meet in the same spirit he thought it would be to the world's advantage.

In conclusion, Lord Trent expressed the hope that the delegates would enjoy their stay and take back happy memories of Nottingham.

Dr. W. R. Wooldridge, Scientific Director of the Animal Health Trust, in thanking Lord Trent and the firm he represented for their lavish hospitality, said how much they had all appreciated the many graces that he had added to what might have been a purely professional visit.

"We should recognise that we are not pharmacists" he said, "and that we can do our job for the animal-owner far better if we co-operate with the pharmacist." "Messrs. Boots' recent sales policy announcement has been well received by the veterinary profession and we can look forward to their co-operation with animal owners by working through the veterinary profession."

Dr. A. E. Cameron, Director of Veterinary Services, Canada, spoke of the manner in which Messrs. Boots cared for the comfort and happiness of their employees, and Professor G. H. Wooldridge declared that the firm had always been pioneers not only with regard to their products but in the choice and selection of their staff.

After dinner the party was treated to a programme of traditional English songs and community singing rounded off a very enjoyable evening.

On the second day the party started their tour with a visit to the Daleside Road production plant where the process of penicillin and streptomycin production was studied. Next, a visit was paid to the Bacteriological and Pharmacological Laboratories, where Professor L. Seekles commented "very advanced work is being carried out here."

At Thurgarton, the home of Boots Veterinary Research Station, the party was welcomed by Sir Jack Drummond, Director of Research, who traced the history of Research within the Company and outlined the plans for the future.

In the laboratories Mr. W. M. Brownlie, in the absence of Mr. D. L. Hughes, Head of the Division, who was unavoidably absent at the International Dairy Congress, had arranged a series of demonstrations by the veterinary and technical staff of the Division.

Mastitis control by means of herd treatment with penicillin and procaine penicillin was demonstrated and the comparative results discussed. A controlled study of the spread of mastitis following the introduction of a known infected animal into a clean herd proved of great interest. The study of sheep diseases and the control of sheep parasites, chemical caponisation, controlled work on hypomagnasaemia and on Johne's disease formed other exhibits.

Studies on the pathology of blackhead, parasitological technique, and an excellent show on the preservation of specimens and museum technique evinced highly favourable comment from the members of the party.

After tea, an opportunity was taken to inspect the experimental and demonstration farms of the Company before the delegates left for Nottingham to join the evening train to London.

The arrangements for the tour were made by Mr. N. M. Black, M.R.C.V.S., Veterinary Adviser, in conjunction with Mr. F. W. Taylor.

* * * *

POULTRY RESEARCH: INTERNATIONAL AWARD

The Tom Newman Memorial Award which was set up by the Poultry Association of Great Britain in commemoration of Tom Newman, for many years Secretary of the Association, who died in 1948 after having been in retirement for some years, has just been awarded in respect of research work done in 1948 to Dr. H. R. Bird, Agricultural Research Centre, Beltsville, Maryland, United States of America.

The award was made to Dr. Bird for his contributions to the advancement of knowledge in poultry science, in particular for his work on the unidentified growth factor present in cow manure, in fish meal and in some other feeding-stuffs of animal origin, and on the relation of this growth factor to the efficient utilisation of vegetable proteins in poultry diets.

* * * * *

We are indebted to the Spanish Delegation to the XIVth International Veterinary Congress for the presentation of three bound volumes of the proceedings of the first Veterinary Congress held in Madrid from October 26th to November 2nd, 1947. These books have been passed to the Central Library for Animal Diseases, where they will doubtless prove a valuable acquisition.

* * * * *

The Racing Pigeon (19, Doughty Street, London, W.C.1) is attempting to collect information on the homing instinct in racing pigeons and other birds, and would be glad if anyone who has made experiments in this field would communicate with the editor of that journal.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

The Production of "Bracken Staggers" in the Horse, and its Treatment by Vitamin B_1 Therapy

Sir,—The production of "bracken poisoning" in the horse has been successfully demonstrated previously, notably by Hadwen and Bruce,[1] by feeding a diet containing appreciable quantities of the plant (*Pteris aquilina*). Our work, using rats, had confirmed the belief that bracken contains a mechanism for rendering aneurin present in the diet, unavailable to the animal; a typical avitaminosis B_1 results in this animal when fed on a bracken diet, otherwise adequate in its B_1 content.

It was of prime importance to ascertain whether an identical situation obtained when farm animals are suffering from poisoning due to eating bracken. A great deal of circumstantial evidence, most of it contained in our previous work on this subject (Evans & Evans. (1949.) *Brit. Vet. J.* **105.** 175) lent powerful support to this theory of the underlying cause of the poisoning.

We wish to report briefly, the reproduction of bracken staggers in the horse, together with certain crucial observations on the clinical condition, and its effective cure by aneurin therapy.

Details of Experiment

Date of commencement: July 8th, 1949.

Subject: Five-year-old bay cart mare; Weight: 1,036 lb. Fit condition, and housed.

Feed: (1) Bracken, cut green July 4th, 1949, sun dried, and chaffed. (2) Hay, good quality, 1949 harvest, and chaffed.

Diet A.—50 per cent. bracken. Mixture of 15 lb. each of (1) and (2) above, daily, in three feeds. Fed from 8.7.49 to 1.8.49—*i.e.*, 24 days. Full feed readily taken during this period.

Diet B.—75 per cent. bracken. Mixture of 24 lb. of (1) and 6 lb. (2) daily in three feeds. Fed from 1.8.49 till 19.8.49—*i.e.*, 18 days when the experiment ended. Full feed readily taken, except during illness, the appetite fully returning under aneurin therapy.

Water—*ad lib.*

Aneurin Therapy: 100 mg. aneurin hydrochloride dissolved in 6 ml. water, injected subcutaneously in every case.

Observations: General appearance, behaviour at rest and during exercise, heart rate, temperature; blood was withdrawn periodically, for haematological examination, vitamin B_1 and pyruvic acid assays.

SEQUENCE AND RESULTS

8.7.49 to 7.8.49.—Both feeds were readily accepted, and mare remained in good spirit, even gaining weight; no symptoms shown, other than dryness and scurfiness of coat.

8.8.49.—Horse a little less bright than usual.

9.8.49.—Definite depression; anorexia; slight incoordination, mainly in hind limbs.

12.8.49.—Symptoms had become daily progressively worse since the 8.7.49; still off feed. Examination showed the following:—

Visible loss in condition with harsh, scurfy coat. Cold extremities. Severe, widespread and frequent muscular twitches, causing involuntary jerky movements of head, neck, limbs and tail. Stands with hind feet planted well apart, and back slightly arched. Reluctant to move at all, doing so in a shuffling manner; such being the degree of incoordination that she is unable to walk straight, but sways and staggers from side to side. On raising head, mare crouches behind until she is almost sitting.

Commenced aneurin injections. 10.15 a.m. first dose administered; 5 p.m. second dose given. After this day, a single dose of aneurin given per day; diet still remained Diet B.

13.8.49.—Slight improvement.

14.8.49.—Vastly improved, brighter, and appetite improved.

15.8.49.—Muscular tremors disappeared. Incoordination only slight.

16.8.49.—Normal, able to walk and trot actively. Eating full feed of Diet B.

19.8.49.—Mare appears normal, and weight increased.

The table below gives a summary of other observations made; it shows clearly that the horse suffering from "bracken staggers" exemplifies an almost uncomplicated picture of avitaminosis B_1, and that aneurin therapy is successful in curing the condition.

Date	Weight (lb.)	Heart rate per min.	Temp. °F.	Blood pyruvate, mg. per 100 ml.	Blood B_1 μg. per 100 ml.
8.7.49	1,036	32	99·4	2·2	8·5
18.7.49	1,076	34	99·8	2·6	7·8
9.8.49	—	52	104·5	3·5	3·25
10.8.49	1,018	68	104·0	—	—
11.8.49	—	68	103·5	6·25	2·5
12.8.49*	—	55†	101·6	5·75	3·0
13.8.49	—	70	103·0	3·2	—
15.8.49	942	40	102	3·5	—
17.8.49	989	48	100·4	3·2	—
19.8.49	1,030	35	101·3	2·9	—

* B_1 therapy commenced.

† Heart beat irregular; frequent missed beat, followed by a few rapid.

Contrary to the findings of Hadwen and Bruce, marked haematological changes occurred, such as reduction in red cell count, haemoglobin, and packed cell volume, with a polymorphonuclear leucocytosis. A temperature rise was also not recorded by these authors. In view of such data being available from only one animal, further work is necessary to confirm whether these are symptomatic of the disease.

Yours faithfully,

H. E. ROBERTS,
E. T. REES EVANS, and
W. CHARLES EVANS,
Department of Animal Health, University College of Wales, Aberystwyth.

August 20th, 1949.

[1] *Brit. Vet. J.* (1933). **89**. 120–128.

* * * * *

PERSONNEL OF THE PROFESSION

Sir,—It was with great interest that I read the letter from Professor McCunn regarding the "future" of the vast number of students who are at present either awaiting entrance to or qualifying from our veterinary colleges.

There can be no doubt that there is a limit to the number of qualified veterinary surgeons who can carry on private practice in this country and at the same time be assured of adequate remuneration for long hours of study and even longer hours of work. Though I personally would abhor and strongly oppose any suggestion of "nationalisation" or "area practice" the threat of such a scheme has got to be considered seriously by the profession in the event of the present political picture remaining unchanged after 1950. As far as I myself know, nothing has been stated regarding the possibility of a National Veterinary Service (N.V.S.) but surely "nationalisation of the land" could easily be extended to engulf the profession: this could be the solution to the problem of utilising vast numbers of newly qualified men, for we have before us constantly the example of the huge increase in administrative staffs of all the other nationalised undertakings. Every practitioner would be responsible to a local Commissar and his Committee, they in turn would be answerable to higher committees and thus the dreadful framework of N.V.S. could be built up. The enlargement and making compulsory of the Survey Scheme would be a great step towards nationalisation of the profession.

I think that the profession can be justly proud of the individuality of its members and I urge the profession to be on its guard against any blows aimed at removing this individuality. We do not want to find ourselves in the position in which the doctors found themselves—disunited and without plans. Let us bear in mind the very recent and to my mind very dreadful example of the secrecy with which the Veterinary Surgeon's Bill was foisted on the profession (the only reaction of which in this town has been the sudden expansion of non-qualified practice by the P.D.S.A.—against which our Council is apparently powerless). Let us urge our newly elected Council to approach the Minister for a definite statement regarding the possibility of N.V.S. and then let all members freely and individually express their views so that a policy can be formulated by which the profession stands united. In my opinion it would be crass stupidity to cling to the oft-expressed idea that the veterinary profession is too small to be nationalised. Some hideous things have happened to minorities in the past few years. I do not want to see the private practitioner ensnared in the meshes of a National Veterinary Service and I do most sincerely feel that it is a threat which may have to be faced in the not-too-distant future. Let us be well prepared

Yours faithfully,

91, London Road,
Chelmsford,
Essex.
ROGER MASSEY.

August 1st, 1949.

* * * * *

SIR THOMAS BROWNE AND "GOOD VETERINARIANS"

Sir,—Lest some of your readers may gain a wrong impression from J. T. E.'s article on the International Congresses in your issue of August 6th, 1949, of Sir Thomas Browne's interest in our profession, may I be permitted to quote Browne's reference to good veterinarians. It occurs in his Pseudodoxia Epidemica in a chapter dealing with the "vulgar and common error" that the horse hath no gall, and is as follows: "The second assertion, that an horse hath no gall, is very general, nor only swallowed by the people and common farriers, but also received by good veterinarians and some who have laudably discoursed upon horses."

Unless J. T. E. knows of another reference I hardly think he is justified in stating that "Sir Thomas Browne had urged the creation of an educated cadre comprising what he styled 'Good Veterinarians' . . . to whom could be entrusted the study and control of the diseases periodically ravaging the herds and flocks of the countryside, for which no help was available except such as was then forthcoming from the 'Common Farriers.' . . ."

Incidentally the Pseudodoxia Epidemica was first published in 1646, so that I think we may assume that the cognate word "veterinary" was in use some time before 1658. Indeed, according to Murray's Oxford Dictionary, the word appeared in Blount's Glossographia in 1656.

Yours faithfully,

HOWEL V. HUGHES.
Liverpool,

August 18th, 1949.

ADVERTISER'S ANNOUNCEMENT

"B.W. & Co." Price List.—The 1949-50 edition of the Burroughs Wellcome & Co. Price List of Veterinary Preparations is now being distributed, and veterinary surgeons who have not already received a copy should make early application. As in previous editions, full details of indications, dosage and administration are given for each product, together with a therapeutic index for easy reference. Important new products which are described include "Lutormone" in the form of compressed products for preparation of parenteral solutions, "Implantin" brand Stilboestrol for chemical caponisation, Protein Hydrolysate with Glucose, Concentrated Lamb Dysentery Serum, Improved Louping-ill Vaccine, Black Disease Vaccine, Orf Vaccine and the full range of Penicillin Intramammary Products. The selected list of medical preparations with potential veterinary applications has been enlarged and brought up to date.

The firm also announces that from August 8th the price of "Lutormone" brand Luteinising Hormone 500 I.U. has been increased to 8s. 6d. (subject to professional discount.